

NEW TAXA AND COMBINATIONS IN NORTH AMERICAN *DELPHINIUM* (RANUNCULACEAE)

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ABSTRACT

New combinations are validated for six taxa of *Delphinium* in North America, so that the names may be used in forthcoming publications. These include, *D. parishii* A. Gray subsp. *pallidum* (Munz) Warnock, *D. parryi* A. Gray subsp. *maritimum* (Davidson) Warnock, *D. parryi* subsp. *purpureum* (Lewis & Epling) Warnock and *D. variegatum* Torrey & A. Gray subsp. *kinkiense* (Munz) Warnock. In addition, *D. hansenii* (Greene) Greene subsp. *ewanianum* and *D. carolinianum* Walter subsp. *calciphilum* are described as new. Clarification is provided for nomenclatural questions in citation of *D. stachydeum* (A. Gray) Tidestrom.

KEY WORDS: Nomenclature, *Delphinium*, Ranunculaceae, North America, floristics.

In the process of completing a treatment of *Delphinium* in California for the forthcoming revised Jepson Manual of the Flora of California (Hickman, *et al.* in prep.), the necessity for making four new nomenclatural combinations was noted. Each of the new combinations is formally made below, with notations on the rationale for producing them. Also in conjunction with study of *Delphinium* for the Jepson Manual revision, a distinct subspecies of *D. hansenii* (Greene) Greene was noted for which there was no epithet. That subspecies is described here with a key to the subspecies of *D. hansenii*. In addition, some confusion has existed as to the proper citation of authorities for *D. stachydeum* (A. Gray) Tidestrom (which also occurs in California). Rationale is presented for choosing the preceding citation over *D. stachydeum* (A. Gray) Nelson & Macbride.

Not related to revision of the Jepson Manual, a new subspecies of *Delphinium carolinianum* Walter is also described here so that the name may be used in forthcoming publications of ecological studies of the Tennessee flora by other workers and for a future treatment of *Delphinium* for the Flora of North America (Morin, *et al.* in prep.). A key to the subspecies of *D. carolinianum* is provided.

NEW COMBINATIONS

Delphinium parishii A. Gray subsp. *pallidum* (Munz) Warnock, *comb. nov.* BASIONYM: *D. parishii* var. *pallidum* Munz, Bull. S. California Acad. Sci. 31:61. 1932. TYPE: UNITED STATES. California: Seymour Creek, Mount Pinos, 5900 ft, heavy soil, 10 Jun 1923, P.A. Munz 6954 (HOLOTYPE: POM 20509!; Isotypes: GH!, UC!).

The revised Jepson Manual will recognize only one infraspecific category in each genus. The change from recognition as a variety to recognition as a subspecies is necessary to bring this taxon in line with the remainder of *Delphinium* in California.

Delphinium parryi A. Gray subsp. *maritimum* (Davidson) Warnock, *comb. nov.* BASIONYM: *D. parryi* var. *maritimum* Davidson, Muhlenbergia 4:35. 1908. TYPE: UNITED STATES. California: Los Angeles Co., Ballona Harbor, 1 Apr 1901, Abrams 1186 (LECTOTYPE [Ewan 1945, p. 182]: DS!; Isotypes: MO!, Z!).

The revised Jepson Manual will recognize only one infraspecific category in each genus. The change from recognition as a variety to recognition as a subspecies is necessary to bring this taxon in line with the remainder of *Delphinium* in California.

Delphinium parryi A. Gray subsp. *purpureum* (Lewis & Epling) Warnock, *comb. nov.* BASIONYM: *D. parishii* subsp. *purpureum* Lewis & Epling, Brittonia 8:15. 1954. TYPE: UNITED STATES. California: Kern Co., Cuddy Valley Road, 0.1 mi from junction with Cuddy Canyon Road, 5 June 1943, H. Lewis & D.B. Dunn 478 (LECTOTYPE [Warnock 1989, p. 483]: LA!; Isotypes: CAS!, GH!, RSA!, UC!).

Leaves of this taxon have narrow lobes, are pubescent with curved hairs and lower leaves are not appreciably different from cauline leaves except for gradual reduction in size further up the stem. Flowers are dark blue to blue-purple, plants are found in open woods and chaparral, and fruits are generally more than 3 times as long as broad. In each of these features, the present taxon is similar to *D. parryi* and different from *D. parishii*. Features in which subspecies *purpureum* is similar to *D. parishii* and different from *D. parryi* were not found, suggesting that this taxon is more closely allied with *D. parryi* than with *D. parishii*.

Delphinium variegatum Torrey & A. Gray subsp. *kinkiense* (Munz) Warnock, *comb. nov.* BASIONYM: *D. kinkiense* Munz, Aliso 7:69. 1969. TYPE: UNITED STATES. California: Los Angeles Co., San Clemente Island, canyon N of Nanny, grassy slope, 800 ft, 18 March 1967, R.M. Beauchamp 290 (HOLOTYPE: RSA 194021!; Isotype: SD).

Other than geographic separation between subspecies *kinkiense* and typical *D. variegatum*, no morphological features were found to consistently differentiate the two taxa. As Munz points out in his original article, specimens of subspecies *kinkiense* are not classic representatives of *D. variegatum*. However, they do fall within the range of variation of that species. It is quite possible that what has been described as *D. kinkiense* actually represents plants of *D. variegatum* with an influx of genetic information from *D. parryi*.

NEW TAXA

***Delphinium hansenii* (Greene) Greene subsp. *ewanianum* Warnock, subsp. nov.** TYPE: UNITED STATES. California: Madera Co., just N of junction of County Road 400 and County Road 415, W of Coarsegold, SW facing rocky slope, open oak woods, 30 April 1989, M.J. Warnock 7457 (HOLOTYPE: SHST; Isotypes: to be distributed).

Delphinium hansenii (Greene) Greene subsp. *hansenii* similis sed plantis aliquantum altioribus, sepalis atrovioleaceis vel vineis, habitationibus altitudinum inferiorum, florescentia praecoci et numero chromosomatum tetraploideo differt.

Similar to *Delphinium hansenii* (Greene) Greene subsp. *hansenii* but differs in its somewhat taller plants ([25]60-100[130] cm vs 40-80[180] cm), dark violet to maroon sepals (vs dark blue-purple to blue to white or pink), habitats at lower altitudes (60-600 m vs 150-3000 m), earlier flowering (late March to early May vs mid-April to late May [July]) and tetraploid chromosome number. In other features, including the unique seeds of the species, the new subspecies falls within the range of variation of typical *D. hansenii*. Lewis & Epling (1954) recognized the existence of this taxon but did not give it a name.

The following key is provided to the subspecies of *Delphinium hansenii*.

1. Sepals very dark, violet-purple to maroon ...subsp. *ewanianum* Warnock
- 1' Sepals lighter colored, dark blue-purple to white or pink2.
2. Leaves mostly basal (these may be dry at anthesis and thus lost from herbarium specimens); usually fewer than three cauline leavessubsp. *kernense* (Davidson) Ewan
- 2' Leaves mostly cauline, basal usually absent at anthesis; three or more cauline leaves present at anthesissubsp. *hansenii*

Delphinium hansenii subsp. *ewanianum* is found on hillsides with rocky soil in open oak woods and grasslands. The geographic range extends through the Sierra Nevada foothills from Calaveras County to Kern County, California.

Populations are very local and many are in areas where housing developments are being created. The taxon should be studied further to determine its status as a threatened or endangered plant.

It is a pleasure to name this new subspecies for Dr. Joseph A. Ewan, who has encouraged, assisted and supported my studies and whose monumental treatment (Ewan 1945) of *Delphinium* in North America provided the basis for my study of the genus.

***Delphinium carolinianum* Walter subsp. *calciphilum* Warnock, subsp. nov.** TYPE: UNITED STATES. Tennessee: Davidson Co., W of Nashville, thin limestone soil, 17 May 1941, *R.E. Shanks & A.J. Sharp 1537* (HOLOTYPE: TEX!; Isotypes: ARIZ!, CAS!, COLO!, DS!, F!, FLAS!, GH!, ILL!, ISC!, MO!, NY!, PH!, POM!, RM!, TENN!, TRT!, UBC!, UC!, US!).

Delphinium carolinianum Walter subsp. *virescenti* (Nuttall) Brooks
similis sed plantis plerumque brevioribus, foliis distincte tripartitis,
inflorescentis saepe ramosa et habitatione in apricis juniperorum
differt.

Morphologically similar to *Delphinium carolinianum* Walter subsp. *virescens* (Nuttall) Brooks, but differs in usually shorter plants, leaves distinctly tripartite (vs usually penta-fid or poly-fid), inflorescence more often branched and habitat of thin (less than 15 cm) soil in juniper glades (vs deeper soil in grasslands). The new subspecies also flowers earlier in the season than its conspecifics at similar altitudes and latitudes, showing a peak of flowering in early May to the middle of May vs a peak in late May to early June. Leaf flavonoid profiles of subsp. *calciphilum* show some affinity to each of the other three subspecies of *D. carolinianum* (*sensu* Warnock 1981), but are most similar to those of subsp. *carolinianum*.

The following key is provided to the subspecies of *Delphinium carolinianum*.

1. Basal leaves lacking or rare at anthesis, cauline leaves divided into many narrow (less than 2 mm) segments, not distinctly tripartite; the uppermost petiole usually less than 1 cm long; flowers usually blue or purple, rarely white subsp. *carolinianum*
- 1' Basal leaves usually present at anthesis, cauline and basal leaf segments usually wider than 2 mm, leaves often distinctly tripartite; the uppermost petiole usually more than 1 cm long; flowers blue or white 2.
2. Leaves distinctly tripartite with few additional divisions; flowers blue or white; rootstocks usually more or less vertical and often without major branches subsp. *vimineum* (D. Don) Warnock

- 2' Leaves with 3-5 or more major divisions, each further divided into segments; sepals white; rootstocks more or less horizontal with several major branches3.
3. Plants found in thin soils over limestone in clearings of deciduous woods; leaves with 3 major divisions; E of Mississippi River subsp. *calciphilum* Warnock
- 3' Plants found in deeper soils in grasslands; leaves with 5 or more major divisions; W of Mississippi River subsp. *virescens* (Nuttall) Brooks

The newly described subspecies occurs in central Tennessee, northern Alabama, south central Kentucky and northwestern Georgia on thin soils derived from limestone. *Delphinium carolinianum* subsp. *carolinianum* does not occur on these formations but its range nearly completely surrounds that of subsp. *calciphilum* (the exception being to the northeast). Subspecies *calciphilum* hybridizes with subspecies *carolinianum* on the edges of the range of subspecies *calciphilum* (Kentucky, Georgia). The subspecific epithet refers to the affinity of these plants for the limestone upon which populations of this taxon are invariably found.

NOMENCLATURAL CLARIFICATION

The species recognized as *Delphinium stachydeum* has been erroneously cited with "(A. Gray) Nelson & Macbride" as the authors of the combination. However, the combination *Delphinium stachydeum* was first published by Tidestrom (1914) and the proper citation for this combination should be *D. stachydeum* (A. Gray) Tidestrom. This conclusion is based on the fact that even though Tidestrom did not formally make the transfer of *D. scopulorum* A. Gray var. *stachydeum* A. Gray, there is no doubt that he intended to recognize the taxon at the species level. Tidestrom uses the new combination in his discussion accompanying the original description of *D. abietorum* Tidestrom. He writes: "The new species described in this paper has hitherto been referred to the northwestern species *D. stachydeum* . . ." and later in the paper, ". . . is distinguished from another related species—*D. glaucum* by its pubescent carpels and from *D. stachydeum* [*D. scopulorum* var. *stachydeum* Gray] by . . ." While this transfer would not be acceptable under today's ICBN, there is no doubt that Tidestrom intended to recognize *D. stachydeum* as a species and to use Gray's epithet as the basionym. Since Tidestrom's combination was effectively and validly made under the rules of nomenclature that apply to the time period in which he published the combination, his combination should be accepted and the later, formal transfer by Nelson & Macbride (1916) should be considered superfluous.

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